



Power Transmission Products, Inc.



Gold Ribbon™ Cog-Belt®

**SOURCE
OF SAVINGS®**



**PayBack &
Belt Life
Calculation Forms**

Gold Ribbon™ Cog-Belt®

PayBack Calculation



MOTOR DATA:	V-BELT DATA:	ENERGY DATA:
Rated HP: _____	Qty. of Belts: _____	Electric Rate: \$ _____/KWH
Speed, RPM: _____	V-Belt Size: _____	Operation: _____ Hrs./Yr.
Mtr. Efficiency: _____	Cog-Belt Cost: \$ _____/Belt	Hrs./Day x _____ Days/Wk x
	Present Cost: \$ _____/Belt	Weeks/Yr. _____
	Premium Cost: \$ _____/Belt	

CALCULATE COST OF ELECTRICAL ENERGY TO OPERATE THIS DRIVE:

$$\text{Annual Kilowatt-Hrs. (KWH)} = \frac{\text{Motor Rated HP} \times .746^* \times \text{Hours/Yr.}}{\text{Motor Efficiency}}$$
 (Your Calculation Here)

$$\text{Annual Cost} = \text{Annual KWH} \times \text{Electricity Rate (\$/KWH)}$$
 (Your Calculation Here)

*Conversion Factor For Transforming HP to KW

CALCULATE YOUR SAVINGS BY USING GOLD RIBBON COG-BELTS ON THIS DRIVE:

(Although Carlisle tests show an increased efficiency of up to 4.5%, we recommend using 2% to allow for individual drive variations.)

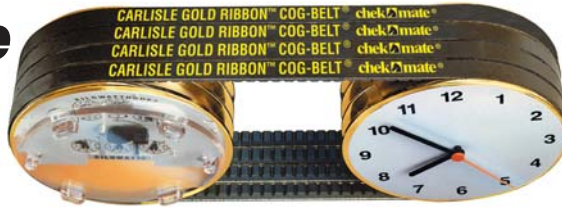
$$\text{Annual Savings} = \text{Annual Cost} \times .02$$
 (Your Calculation Here)

CALCULATE YOUR PAYBACK (MONTHS) TO RECOVER PREMIUM PAID FOR COG-BELT:

$$\text{Payback (Months)} = \frac{\text{Premium per Belt} \times \text{No. of Belts on Drive} \times 12 \text{ Mo./Yr.}}{\text{Annual Savings}}$$
 (Your Calculation Here)

Gold Ribbon™ Cog-Belt®

Belt Life Calculation



DETERMINE DRIVE DESIGN HORSEPOWER (DHP):

Motor: _____ HP, _____ RPM
 Service Factor:* _____
 Design HP (Motor HP x S.F.): _____ DHP

DETERMINE DRIVE RATED HORSEPOWER FOR EACH BELT TYPE (RHP1 & RHP2):

Sheave Dias: DR _____ DN _____ Corr. HP/Belt:* _____ No. of Belts: _____ Size: _____ Drive Rated HP: Corr. HP/Belt x No. Belts = _____ RHP ₁	Sheave Dias: DR _____ DN _____ Corr. HP/Belt:* _____ No. of Belts: _____ Size: _____ Drive Rated HP: Corr. HP/Belt x No. Belts = _____ RHP ₂
---	---

DETERMINE % HP LEVEL & % LIFE LEVEL FOR EACH BELT TYPE:

$\% \text{ HP Level} = \frac{\text{RHP}_1}{\text{DHP}} \times 100$ $\% \text{ HP Level} = \frac{\text{RHP}_1}{\text{DHP}} \times 100 = \text{_____} \%$ From HP/Life Table (On reverse side) ... % Life Level = _____ %	$\% \text{ HP Level} = \frac{\text{RHP}_2}{\text{DHP}} \times 100$ $\% \text{ HP Level} = \frac{\text{RHP}_2}{\text{DHP}} \times 100 = \text{_____} \%$ From HP/Life Table (On reverse side) ... % Life Level = _____ %
---	---

COMPARE ESTIMATED LIFE LEVELS OF BOTH BELT TYPES:

Cog-Belt % Life Level

(Wrapped Belt % Life Level ⁻¹) X 100

(_____ -1) X 100 _____ %

(This value indicates how long Carlisle's Gold Ribbon™ Cog-Belt will last compared to present wrapped V-belts.)

*Use Carlisle Engineering Guide for V-Belt Drives (No. 102161) for this information.

CARLISLE HORSEPOWER/LIFE RELATIONSHIP TABLE

% Catalog HP Level	% Catalog LIFE Level	% Catalog HP Level	% Catalog LIFE Level
50	8	95	86
51	9	96	89
52	10	97	91
53	11	98	94
54	12	99	97
55	13	100	100
56	14	101	103
57	15	102	106
58	16	103	109
59	17	104	112
60	18	105	115
61	19	106	118
62	20	107	121
63	21	108	125
64	23	109	128
65	24	110	131
66	26	111	134
67	27	112	138
68	29	113	141
69	30	114	144
70	32	115	147
71	33	116	151
72	35	117	154
73	36	118	158
74	38	119	161
75	40	120	165
76	42	121	168
77	44	122	172
78	46	123	176
79	48	124	180
80	50	125	183
81	52	126	187
82	54	127	191
83	56	128	195
84	59	129	198
85	61	130	202
86	63	131	206
87	65	132	210
88	68	133	214
89	70	134	218
90	73	135	221
91	75	136	225
92	78	137	229
93	80	138	233
94	83	139	236

EXPLANATION OF TABLE

The Horsepower/Life Relationship Table was developed by V-belt engineers at the Carlisle Belt Technical Center in Springfield, MO. The purpose for this table is to display the relationship between the rated horsepower of the V-belt drive and the projected belt life of that drive.

The catalog horsepower rating of a V-belt is determined by testing the belt in a laboratory under very specific conditions. The horsepower rating for that belt is established based on the number of hours it operates under these laboratory conditions. The longer a belt runs on the test, the higher its horsepower rating. Thus, this test provides a uniform "base life" for V-belts assuring satisfactory belt life for a given drive horsepower requirement.

The % Catalog Life Level is basically a scientifically developed estimate of how V-belt drive life is affected by changes in the % Catalog Horsepower Level. 100% catalog HP level correlates to 100% catalog life level. However, changes in the % catalog HP level do not affect the % catalog life level on an equal basis. Rather, the effect is magnified on a geometric basis.

The horsepower rating for a Carlisle Gold Ribbon Cog-Belt is higher than the equivalent size conventional wrapped V-belt. Therefore, when a Gold Ribbon Cog-Belt is used on a drive designed for conventional V-belts, the Gold Ribbon Cog-Belt will operate longer. By using this Horsepower/Life Relationship Table in conjunction with the Carlisle Belt Life Calculation Form, you can estimate approximately how much longer the Carlisle Gold Ribbon Cog-Belt will last when it is used in place of a conventional wrapped type V-belt on the same drive.



Power Transmission Products, Inc.

US Customer Service: (866) 773-2926
 Canada Customer Service: (866) 797-2358
 Website: www.carlislebelts.com
 Email: info@carlislebelts.com